



The on-orbit film from the STS-30 mission is back, and it's clear that the crew enjoyed their hard work aboard *Atlantis*. Photos on Page 3.



A White Sands worker has won the latest JSC Quality Partnership Award for making written safety guidelines understandable. Story on Page 4.

Space News Roundup

Vol. 28

May 26, 1989

No. 21

Hurricane season nearly upon Houston

By Linda Copley

June 1 may mark the end of school days and the beginning of summer fun for many, but Texas Gulf Coast residents have good reason to respect that date as the beginning of Hurricane season.

And at JSC, the Plant Engineering Division and emergency planning representatives from across the center consider that date the beginning of action Level 1, a state of continual preparation for possible storms and severe weather that continues throughout the season.

Although most tropical storms and hurricanes threaten our coastlines in August and September, storms have been known to form throughout the June 1-Nov. 30 season. JSC employees are kept informed of potential storms, as well as appropriate plans and procedures for safeguarding their work areas against wind and water damage, by NASA television and by recorded messages on x33351.

Action Level 2 occurs whenever there is an actual threat of a storm. Security and plant engineering personnel will set about securing JSC facilities and equipment and will open a Hurricane Command Post in Bldg. 30, if ordered, by Center Operations Director Ken Gilbreath.

Please see **HURRICANE**, Page 4



HUBBLE HANDIWORK—Astronaut Bruce McCandless II, a member of the STS-31 crew that will deploy the Hubble Space Telescope, works with one of the tools that will be used in the event an extravehicular activity is needed during deployment. The test took place in Bldg. 32's Space Environment Simulation Facility Test Chamber B.

Columbia crew ready for interface test; much work remains

By Kyle Herring

A month of work remains before space shuttle *Columbia* rolls from its Orbiter Processing Facility hangar at the Kennedy Space Center to be mated with its external tank and solid rocket boosters in the Vehicle Assembly Building.

Workers in Florida prepared this week for the crew equipment interface test (CEIT) aboard *Columbia*. The crew for the STS-28 mission will take part in the test scheduled to begin this weekend.

Larry Parsons, second shift project engineer for JSC's orbiter resident office at Kennedy, said the test will allow the crew to see *Columbia* for the first time since refurbishing began.

"The CEIT is the first time in the flow that the crew gets involved," he said, adding that "they go through some integration test procedures" before the actual flight, which is a dedicated Department of Defense mission.

Columbia will be commanded by Brewster Shaw, a veteran of two previous Shuttle missions—STS-9 and STS-61B. Dick Richards will serve as pilot. Rounding out the crew are Mission Specialists Dave Leestma, Jim Adamson and Mark Brown. Richards, Adamson and

Brown will make their first space flights. Leestma served as mission specialist on STS-41G.

In preparation for the CEIT, the end-to-end verification test was completed Tuesday and the frequency response test began Wednesday morning. Hydraulic work continued through this week as



shuttle managers discussed moving the helium signature leak checks to next week in

order to maintain the planned schedule for the start of the CEIT Sunday.

Moving the helium signature test would not impact the overall flow schedule for *Columbia*'s planned roll out from the OPF late next month. Other work on the spacecraft continues with about 73 tile cavities remaining. *Columbia* began its return to the flight processing flow with about 2,300 tile cavities.

In the VAB, the external tank was mated with its twin solid rocket boosters Tuesday and final close out work began in preparation for the mate with *Columbia* when it arrives.

Though the schedule is tight for the next flight, Parsons said work is proceeding around the clock to get *Columbia* ready. "They're working real hard," he said, "there is just a heck of a lot of work."

Landing gear tests start with JSC idea

Aircraft to duplicate shuttle landing speeds, loads

A NASA Convair-990 aircraft will be used next year for extensive tests of space shuttle landing gear assemblies, from normal conditions up to and including failures, at NASA's Ames-Dryden Flight Research Facility.

The tests are part of a continuing effort by several JSC organizations and the rest of NASA to upgrade and enhance space shuttle landing capabilities. The project was conceived at JSC and is being managed by the NSTS Engineering Integration Office, but most of the test work will take place at Ames-Dryden.

The Convair-990 may prove useful after the shuttle tests are completed, as a testbed for future landing systems

on NASA and commercial vehicles.

Data from the tests will give engineers information on what to expect should an orbiter experience a flat tire or other problems on landing and will provide data to help in developing crew procedures for various landing conditions and situations, said Drum Simpson, a Rockwell International employee who has coordinated the project for two and a half years.

Simpson said he and Dick Tuntland, who work in the NSTS operations integration, came up with the idea to use some sort of vehicle as a landing gear testbed, then Charlie Baker of the Orbiter Office at Dryden located the aircraft in storage and

suggested its use. Astronaut Bryan O'Connor, former chairman of NASA's Space Flight Safety Panel, and Rudy Balciunas and Carlisle Campbell of JSC's Structures and Mechanics Division, helped establish the test program, he said. Doug Cooke of the NSTS Engineering Integration Office is project manager at JSC.

Former astronaut C. Gordon Fullerton, a veteran of shuttle flights STS-3 and STS-51F, will be the Ames-Dryden project pilot for the tests. Planning and modifications to the Convair begin this year. Pre-modification flights to collect baseline

Please see **TESTS**, Page 4

Space food pioneer earns medical honor

Rita M. Rapp, a JSC pioneer in the field of space food, nutrition, hygiene and sanitation, recently received the Aerospace Medical Association's award for the year's most significant contribution in space medicine.



Rapp

Rapp, subsystem manager for space shuttle food in the Man-Systems Division, was cited for "her devotion to space medicine, applying her unique skills and talent to the care and feeding of space flight crews.

Through her creativity, dedication and perseverance, U.S. spaceflight food systems have evolved from tubes and cubes to customary meals with regular utensils."

The Louis H. Bauer Founders Award, named for the founder of the Aerospace Medical Association, was presented May 11 in Washington, D.C.

Rapp joined NASA as a member of the Space Task Group at Langley Field in 1961, and moved to Houston and the Manned Spacecraft Center, now JSC, in 1962. She participated in NASA manned launches from the earliest Mercury flights into the space shuttle era, establishing a close rapport with the astronauts.

Back in the fold

JSC 'graduates' start alumni league chapter

By Linda Copley

More than a hundred former NASA employees, the majority of them JSC "graduates," joined former center director Gerald Griffin at the Gilruth Recreation Center last Friday for an enthusiastic "founding" meeting of the NASA Alumni League's JSC Chapter.

"It was great to see so many familiar faces," said Griffin. "To get reacquainted with a crowd that represents, collectively, hundreds of years of NASA experience."

The meeting was the first of its kind for NASA retirees and former employees now living in Texas. "We wanted to create a forum, a place for us to collect ourselves and to call on the talents of so many good people," Griffin said.

"We have to realize we are living in a different kind of era than we were in the '60s," Griffin said. "Then space exploration could be sold as the 'right thing to do.' Now we are competing with other federal programs for dollars, and we have to learn that our hopes in space must be counterbalanced in the public's mind with that competition."

The group was founded to help promote

NASA's programs. They want to be available to use their talents and experience to tell NASA's story to the public, to contact legislators regarding their views on space-related issues, testify to key committees of Congress and, if called upon, to perform independent assessments of space-related issues.

"The *Challenger* accident charged all of us former NASA employees that we really need to have every oar in the water in a crisis. If this group, those of us who 'knew the scene,' had existed at the time NASA was getting all the unfavorable press, I think we could have made a difference," said Griffin, now president of the Greater Houston Chamber of Commerce.

The NASA Alumni group was founded in 1986, and is headquartered in Washington, Griffin explained. There was, however, no real way for those outside that area to meet and participate in the league. It is only this year that the various centers have begun to establish regional chapters and hold their own meetings, he said.

Please see **ALUMNI**, Page 4



JSC Photo by Benny Benavides

The founding members of the new NASA Alumni League JSC Chapter gather for a group photo at the Gilruth Recreation Center.

Contractor earns Space Act Award

William M. Lear, a McDonnell Douglas Corp. employee, has been granted a Space Act Award of \$10,000 for his work on navigation filtering techniques important to Apollo and space shuttle missions.

Lear's contribution is described as "a practical means for determining space vehicle position and velocity during both dynamic and quiescent phases of space flight operations." JSC Director Aaron Cohen presented the award May 10.

AIAA woman of month

Celeste Sychterz-Wilson, an employee of JSC's New Initiatives Office, recently received the American Institute of Aeronautics and Astronautics (AIAA) Professional Woman of the Month award.



Lear

Turnbough

Sychterz chairs the AIAA/Space-week parade and rally committee.

Secretaries honored

Bebe B. Ballas and Linda K. Turnbough recently received Marilyn J. Bockting Secretarial Excellence Awards. Each received a plaque and a \$500 cash award.



Sychterz-Wilson

Ballas

Ballas, who serves as secretary to the chief of the Man-Systems Division, was cited for her stabilizing influence during and since the 1984 merger that created the division.

Turnbough, secretary to the manager of the Space Station Integration Office, was praised for her work in setting up office procedures and protocols when the integration office was formed in 1987.

JSC

Dates & Data

Today

Cafeteria menu—Special: meat sauce and spaghetti. Entrees: baked scrod, liver and onions, fried shrimp. Soup: seafood gumbo. Vegetables: green beans, buttered broccoli, whipped potatoes.

Monday

Memorial Day—Most JSC offices will be closed in observance of the Memorial Day holiday.

Tuesday

Astronomy seminar—An astronomy seminar featuring a Rice University videotape on "The Tale of the Small Comet Hypotheses" will be held from noon to 1 p.m. May 30, in Bldg. 31, Rm. 193. Contact Al Jackson, x33709, for more information.

Cafeteria menu—Special: pepper steak. Entrees: fried shrimp, pork chop with apple-sauce, turkey a la king. Soup: celery. Vegetables: au gratin potatoes, breaded squash, buttered spinach.

Wednesday

Cafeteria menu—Special: Mexican dinner. Entrees: fried catfish with hush puppies, braised beef ribs. Soup: seafood gumbo. Vegetables: Spanish rice, ranch beans, buttered peas.

Thursday

Cafeteria menu—Special: hamburger steak with onion gravy. Entrees: corned beef with cabbage and new potatoes, chicken and dumplings, tamales with chili. Soup: split pea. Vegetables: Navy beans, buttered cabbage, green beans.

June 2

Cafeteria menu—Special: barbecue link. Entrees: deviled crabs, broiled codfish, liver and onions.

Soup: seafood gumbo. Vegetables: buttered corn, green beans, new potatoes.

June 5

Blood pressure screening—In observance of National Blood Pressure Week, the JSC clinic will conduct free blood pressure screening clinics in the lobbies of JSC buildings, the Beta and Vanguard buildings, Ellington field, and the Bldg. 8 clinic on varying days and times during the week of June 5-9. Contact the JSC clinic at x34111 for more information.

June 16

Technical awards banquet—The annual Clear Lake Council Technical Societies' Awards Banquet will begin at 6:30 p.m. June 16, at the Gilruth Recreation Center. The featured speaker will be Richard Underwood, discussing "Space Through the Eyes of the Camera." Tickets are \$10; deadline for reservations is June 12. Anyone wishing to attend should contact Marcia Taylor at x30195.

June 27

Occidental road relay—The Occidental 4-by-2 mile corporate road relay will be held at the San Jacinto monument. There are male, female, and mixed team categories. NASA runners interested in participating should contact Patrick Chimes, x32397, for information; Air Force personnel can sign up with Luis Rodriguez, x38669.

BAPCO meeting—The Bay Area PC Organization (BAPCO) will meet at 7:30 p.m. June 27 at the League City Bank and Trust. Contact Earl Rubenstein, x34807 or 326-2354, or Ron Waldbillig, 337-5074, for information.

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Gift Store from 10 a.m. to 2 p.m. weekdays: FBA cards are still available to civil service employees at Bldg. 11 store.

General Cinema (valid for one year): \$3.50 each.

AMC Theater (valid until May 31): \$3 each.

Sea-Arama Marineworld (Galveston, valid until Aug. 17, 1990): adults,

\$8.75; children \$5.50.

Sea World (San Antonio, year long): adults, \$17.25; children \$14.75. Astroworld (valid 1989): adults, \$14.12; children under 4, \$11.99; season pass, \$32.36; Waterworld (valid 1989): \$8.15.

Salt Dome Festival-Concert (June 3, West Chambers County Houston Raceway Park, includes Willie Nelson, Ray Benson, Asleep at the Wheel, Tony Perez and Chaparral):

\$12.50.

Houston Astros vs Los Angeles Dodgers (June 3): \$7.

World Figure Skating Champions (June 6, 8 p.m., Summit, features 1988 and 1989 gold, silver and bronze medalists): \$18.

Houston Balalaika Concert (June 10, Cullen Theatre of Wortham Center, features NEVA Russian Dance Ensemble, songs from "Dr. Zhivago," "Fiddler on the Roof"): \$14.

JSC

Gilruth Center News

Sign up policy—All classes and athletic activities are first come, first served. To enroll, you must sign up in person at the Gilruth. Everyone will be required to show badge or EAA membership card. Payment must be made in full at the time of registration. Classes tend to fill up four weeks in advance.

EAA badges—Dependents and spouses may apply for a picture I.D.

6:30-9:30 p.m. Monday-Friday.

Fun'r in the Sum'r—Men's "C" open softball tournament June 3-4. Limited to 14 teams. Must register by June 1. Entry fee is \$95.

Defensive driving—Course is offered from 8 a.m.-5 p.m., June 17: \$22.

Weight safety—Required for use of the Rec Center weight room. Classes will be 8-9:30 p.m., June 14 and June

29; cost is \$4.

Aerobics and exercise—Both classes are ongoing; cost is \$24.

Tennis lessons—Beginning tennis, Mondays 5:15-6:45 p.m. Six week course begins June 26; \$32 per person.

Scuba lessons—The course includes classroom and pool sessions, open water dive. Five-week class begins July 10; cost is \$45, plus additional fees.

JSC

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2.

Property

Sale: Wedgewood Village, Friendswood, 2 residential lots, each approx. 70' x 185', neighboring homes, 90-100's, one mi. from new Clearbrook High School, owner finan. w/10% down. 482-5226.

Sale: Seabrook, 3-2-2, approx. 1,800 sq. ft., lg. den, FPL, recently remod., new A/C, heater, roof, carpet, spa w/redwood deck, all brick, corner lot on cul-de-sac, assum. 9 7/8%, \$70,000 by owner. Richard, x30271 or 474-9334.

Sale: Two lots on Ballard Ave. at Turnbuckle Dr., membership in Newport Country Club on Lake Houston, sell below county tax appraisal. Joe Canniff, 333-7357.

Sale: Friendswood/Sun Meadow Estates, wooded lot in estab. neighborhood, cul-de-sac, bordered by stream and golf course on 2 sides, approx. 245' deep and up to 86' wide, util. on site, \$31,500. Doug, x32860 or 486-7412.

Lease: El Dorado Trace condo, 2 BR, W/D. 280-7309 or 487-1509.

Rent 2 BR-1 BA apt. in Webster/Clear Lake, many extras, \$360/mo. Dave, x38156 or 486-5181 or Eric, x38420.

Sale/Lease: Austin/UT condo, 1-1, near law school, assum. loan, lease, \$395/mo. J. Craig, 282-1911 or 420-2936.

Lease: Heritage Park, new section, 3-2-2, formal dining, lg. kitchen w/breakfast area, custom drapes, mini-blinds, ceiling fan, FPL, fence, \$625/mo. 482-6609.

Lease: Friendswood/Forest Bend, 3-2-2, ceiling fan, patio, fenced, solar screens, close to Greene Elem. School, \$525/mo. 482-6609.

Sale: Meadowgreen, contemp., 3-2-2 Mitchell home, split floor plan, study off master, lg. master bath w/2 walk-in closets, 2-car finished gar., new paint in and out, vinyl and carpets less than 2 yrs. old, 15 min. from NASA, FHA assum., \$86,800 (\$3,000 equity), 486-8160.

Rent: Sagemont, 3-2-2 w/sep. maid qtrs., FPL, new energy eff. A/C, miniblinds, refrig., \$600/mo., low dep. Gil, x34074 or 941-1129.

Sale: Univ. Green patio home, exec. residence, located 5 blks. from JSC west gate, ext. amenities, low maint., 2 plus study-2-2D, \$92,000. 488-0397.

sleeps 6. 482-1582.

Sale: Toledo Bend, 7 lots, 2 waterfront, all heavily wooded, bargain. 334-1909.

Sale: Cocoa Beach, FL oceanfront time-sharing condo, five-star rated, take over payments. Kelly, x31356 or 488-4870.

Sale: Webster 3-2-2, new roof and carpet, gameroom, det. gar., handy to JSC, Webster med. cen., Baybrook, \$59,500. 332-5177.

Sale: Heritage Park 4-2-2, walk-ins, sep. master suite, clean, patio cover, fenced, stove, refrig., assum. VA loan. 334-1909.

Rent: Cancun, MX, 2 BD villa, 5-star resort, sleeps 6, satellite T.V., fully-equipped kitchen, maid serv., rec. amenities incl., \$135/night. 729-0654.

Rent: League City, 3-2-2, end of cul-de-sac, screened patio, 1 blk. from elem. school, \$550/mo. Leona Helms, 332-2953.

Rent: Furn. condo, 1 BR, study, 1 1/3 BA, color T.V., microwave, dishes, linens, pools, tennis, exer. room, spa, close to NASA, \$450. 282-6422 or 488-7038.

Sale: Seabrook, house w/sep. apt., lake view on a heavily wooded 75' x 150' lot, \$85,000. 333-5821.

Sale: Seabrook, 3.29 acres w/small 2 BR-1 BA home, 5 mi. from NASA, secluded, \$97,500. 532-4784.

Rent: Lake Travis cabin, private boat and dock, CA, fully equipped, \$425/wkly. 326-5652.

Lease: League City, 4-2-2, Newport subdiv. \$475/mo. 554-3183.

Cars & Trucks

'76 Dodge power Ram 4x4, very good cond., new clutch, new brakes, power winch, \$3,000. George, 944-9761.

'85 Ford F-150 PU, V-8, EFI, new motor, auto. trans., paint, and int., cruise, cass. stereo, \$6,700, OBO. 480-1959.

'78 Corvette silver anniv. edition, new 2-tone silver paint w/white int., T-tops, all power, 14K mi. on new vette eng., restored to showroom cond., \$11,250. Richard, x30271 or 474-9334.

'81 Pontiac Lamans, 4-dr., needs some work, \$950, OBO. Terri, x39540 or 941-2928.

'85 Dodge Omni GLH turbo, full roll cage, spare roller, eight wheels, less than 1K on rebuild, spares negot., \$2,500. x32949.

'79 Mazda B2000 truck, \$550. 486-1532.

'76 Chevy Vega, eng. needs work, BO. x31543 or 332-0601.

'86 Chrysler LeBaron, Landau, gar. kept, 46K mi., full Zeibart pkg./warr., ex. cond., assum. loan or will sell. Brenda J., x37752 or 996-9738.

Cycles

'86 Yamaha Virago 1100, 11K mi., all leather access., gold trimmed, ex. cond., \$3,000. Mona, x31759 or 996-1878.

Men's 10-spd. bike, \$25. x36091 or 333-5326.

'86 Honda Interceptor VFR, gear-driven cam V-4, like new, red/white/blue, gar. kept, 1,300 mi. x31588 or 488-1326.

'85 Honda Shadow 500, ex. cond., low mi., new batt., one owner, \$1,600. Shari, x38504 or 996-7736.

'82 Yamaha Virago 750, less than 5K mi., \$800. Steve Bass, x32304 or 538-1624.

Honda Goldwing, 1000cc, low mi., loaded, \$1,495. (409) 273-4098.

Raleigh-Rampar 10-spd. 27" bike w/water bottle, book rack, and speedometer-odometer. Bryan, 282-3277.

Boats & Planes

'75 Bayliner, 21' w/cuddy, new V-6 Crusader 165hp, can sleep 4 comfortably, sink, toilet, ice box, holds 54 gal. of fuel, will trade for camper trailer or \$4,900 cash. George, 944-9761.

'13' AMF board sail boat, \$350. 483-0838 or 333-2769.

'84 Ranger 350V bass boat, western grand national tournament rig, 150hp Merc. loaded, custom cover, immaculate, \$9,000. x32402 or 488-4117.

Audiovisual & Computers

Columbia, VP-1600 transportable computer, IBM compat., 128K Ram, 2 360K drives, software, software manuals, \$300. Matt, x34285 or 486-7260.

Zenith computer, 100% IBM compat., 640K memory, 2-360K floppy drives, graphics capability, internal modem, software and manuals, \$900, OBO. Daryle, 282-4863 or 532-1977.

PC-AT clone, 1Mb memory, Serial port, parallel port, 1.2Mb floppy and 360K floppy, 40Mb hard disk, EGA card and color monitor 640x350 resolution, also Star micronics NX10 printer, NLQ, 240 dpi and ex. graphics, both for \$1,700 firm. Charles, x33599 or 474-9259.

Pets & Livestock

Free kittens to good home. Sandy, 332-0704.

Miniature Dachshund puppies, AKC reg., 1 red and 2 black w/brown markings, 6 wks. old. 282-4908 or 534-2752.

Free dogs to good home, rescued, and nursed back to health, many to choose from. x32949.

Hamster habitat, beg. set, complete, like new, incl. extra pet supplies, \$25. Bob, x32193 or 332-3817.

Free puppies to good home, Heinz 57-mo. beagle. 996-9738.

Small female Shetland/Cocker for good home, 6 mo. old, approx. 10 lbs., blond, shots, friendly.

333-2395.

AKC reg. Rottweiler puppies, championship bloodline, tails docked, dewclaw removed and shots, born 3/29/89, \$500 firm. Barbara, (409) 925-2950.

AKC toy Fox Terrier, 1 yr. old, female, very small, \$150. 331-9441.

Wanted

Want to buy sofa and refrig., clean, in good shape. Kay, x31416.

Riders needed, van pool to NASA area from West Houston, meet at West Loop Park and Ride lot (South Post Oak at Braeswood). Richard, x37557.

Want to rent pop-up camper. 487-1883.

Want 2 child safety gates for stairs. Jeff, x30715 or 280-8608.

Want motorcycle, outdoor motor, lawn tracker/mower needing work, reasonable. Bob, 333-7138 or 554-2476.

Household

Four upholstered chairs, tiered LR table, matching BR suite, double bed, vanity, dresser, 2 end tables, 2 lamp tables, 7 lamps and shades, T.V. console, W/D, framed pictures, pots, pans, dishes, kitchen appl., ladies clothing; 23" color T.V. console, \$85; Kenmore washer, \$50; Kenmore dryer, \$40, as is. Baywind II, Apt. 1-146 only after 10 a.m. on Sat, May 27 and Sun., May 28.

Refrig., gold, side by side, 20 cu. ft., good cond., \$295. 334-4361 or 483-9421.

Sears Kenmore refrig. w/ice maker, 19 cu. ft., \$400; king-size waterbed, complete, \$100; dining table, 6 chairs w/china cabinet, \$300; sofa, \$50. Judy, x38455.

Sears Kenmore window AC, 115 volt, 13,800 BTU w/dehumidifier switch, high eff., 9-9 EER, 2 yrs. old, 5 yr. transferrable warr., \$300, OBO. Chris, 332-5629 or 483-2304.

Musical Instruments

Klipsch Heresy II loud speakers, walnut finished birch, \$700/pair. Bill, x38544.

Lost & Found

Found roll of 35mm film at Kenny Rogers concert, had developed, but do not recognize, please claim in Bldg. 1, room 506. Linda Lair, x30940.

Lost at the Kenny, Dolly, and Willie concert on May 2 (near the T-shirt stand), old silver dollar money clip, sentimental value, \$25 reward. L.J. Corcoran, x33005.

Miscellaneous

Squirrel cage fan and motor, furnace type, BO. 488-4487.

One gal. Hibiscus plants, reds, pinks and

doubles, \$2.50/ea. 482-5226.

Tables, chairs, lamps, lawnmower, edger, T.V.'s, garden tools, kitchenware, filing cabinets, much more. Matt, x34285 or 486-7260.

Sensation waterbed, queen size, tube type, looks like standard mattress, \$350. David, 554-5514 or 282-3827.

Equalizer towbar hitch, fits Chevrolet, \$60. Ian, 644-0315.

Antique humpback steamer trunk, 34L x 21W x 28H, has 95% HDW/trim, \$195; elect. dust collector for furnace, H.P. "Edition," w/pressure switch, 80-1600 CFM, was \$380, now \$150; mirrors, gold-veined (2), 45 x 91 1/2, \$100/ea. Doug, x32860 or 486-7412.

25" remote control Zenith console T.V.; ski exer. machine; Lovejoy SAT prep. (will trade for Quicken); Apple II computer on an IBM PC; clone card; AM/FM all digital car cass.; clean drinking water appli. Tony, 280-1564 or 482-4156.

Boaters: Have new Magnetron for Furuno 5 and 10 KW radar, easy to convert 5 KW to 10 KW. Pat, x33858.

Bar room size Brunswick pool table, 1 yr. old, \$700; ping pong table, 1 yr. old, \$50; baby crib, good shape, \$50. 475-0608.

White full length sequined wedding dress, size 8, \$125. 280-8038.

New Jenny Lind cradle, dark maple finish w/designer sheet, comforter, bumper pad and pillow sham, \$75. Bill, x36311.

Sears king size bed, ex. cond., \$200. 333-5821.

Ajay 2500 body builder exer. machine, stomach and upper body, like new, \$100. 554-5002.

Colt revolver, .38 caliber detective special, 1 inch barrel, seldom used, \$200, OBO. Mark, 474-2195.

Mossberg 12-ga. shotgun; magnavox VCR; panasonic 18" B/W T.V., BO. 480-5079 or 282-2509.

Bra for 83/84 Mustang, \$20. 332-5177.

Free, Ward's washer w/bad motor, only 2 yrs. old, haul it away. Steve, 480-9715.

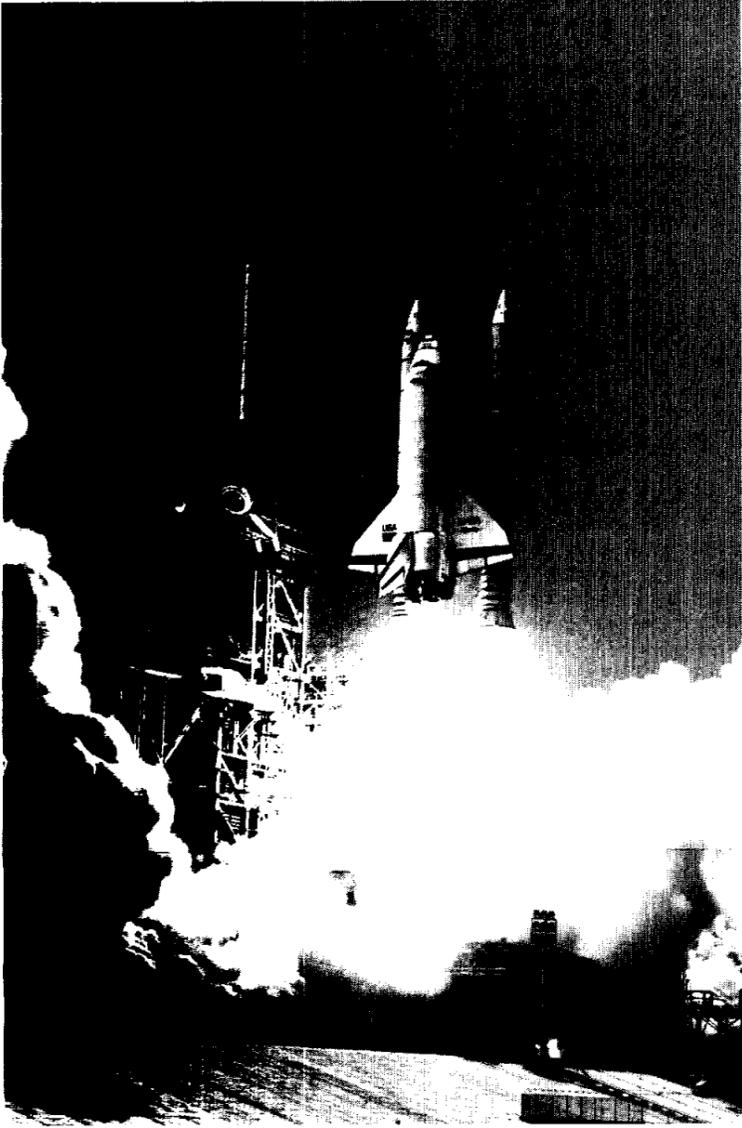
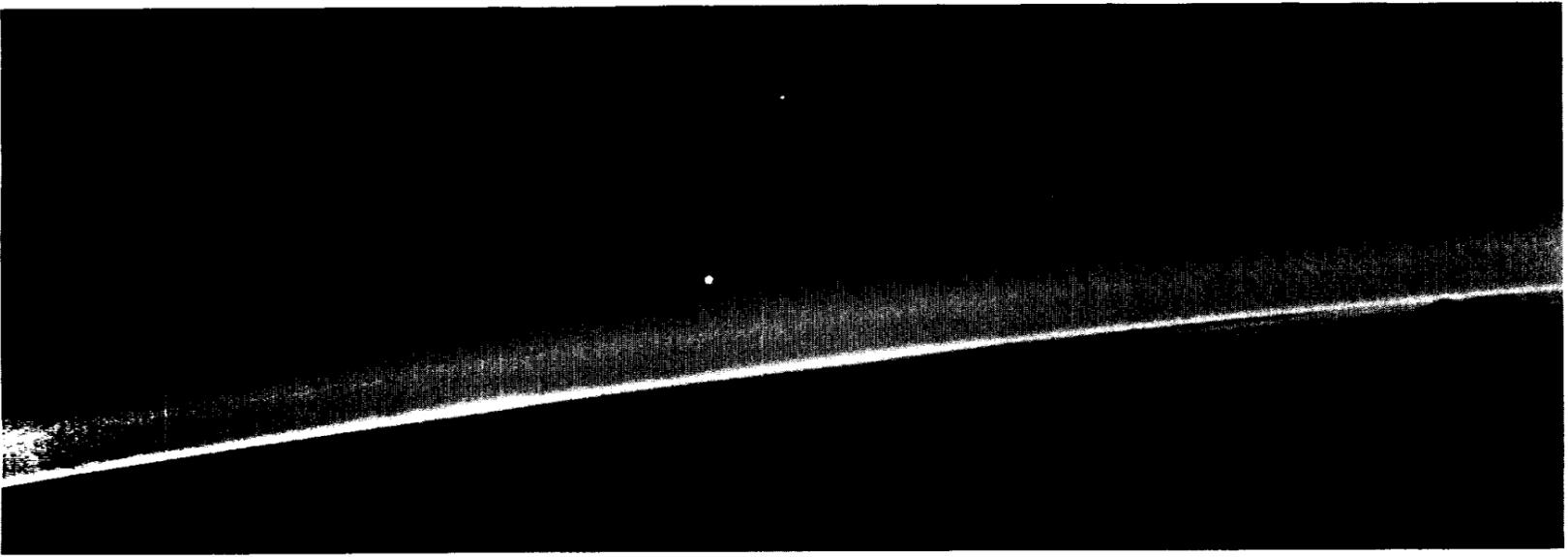
Golf clubs, Tour Model System II, 1-9 PW, SW, \$185; metal woods, \$70 for 1 and 3, \$40/ea. David, 554-5514.

G.E. 4.0 cu. ft. refrig./freezer, almost new, \$100. Charles, x31153 or 481-2940.

Overstuffed chair, country pattern, beige, brown, dark peach, ex. cond., \$75, OBO. 280-1599 or 482-9168.

Sleeper chair, ex. cond., \$100; tilt head 1/2" drillpress on rolling floor stand, \$150; 17 cu. ft. Sears chest freezer, \$150. 480-2900.

14K gold pendant and 27" heavy "S" link chain, 7 diamonds (0.6 carats total), total wt. 18 grams, appr. value, \$1,360. BO. 280-7403.

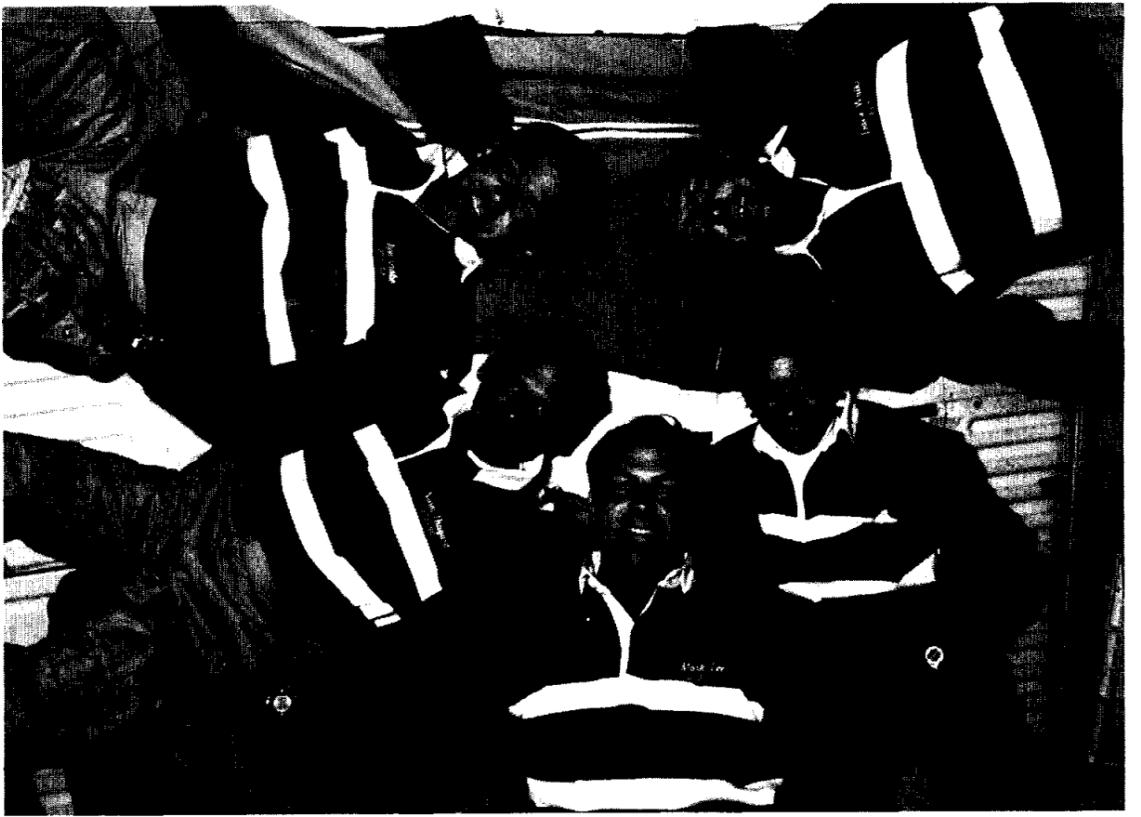
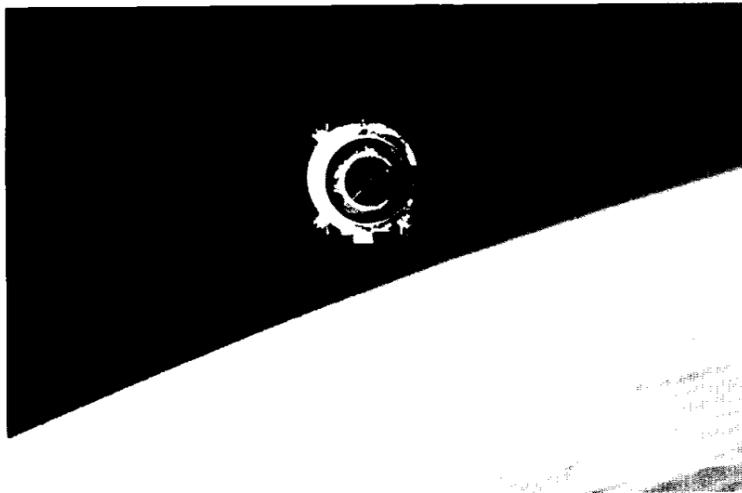


EXTENDING THE . SHUTTLE'S . REACH

"You've extended the shuttle's reach far beyond Earth orbit. Commodore Magellan would approve."

That's how CAPCOM Frank Culbertson summed up the main success of the STS-30 mission as *Atlantis* touched down on the runway at Edwards Air Force Base. While those words crystalize the importance of the merger of NASA's manned and unmanned exploration programs, images can convey as much and more.

Clockwise from top: 1) A timely appearance of Venus, the target of the Magellan probe launched by the STS-30 crew, surprised astronauts who had not expected to see the planet while in orbit; 2) Cape Canaveral and the Kennedy Space Center area are brought sharply into focus by an infrared photograph; 3) crew members arrange themselves for a clock-like portrait—clockwise from top right are Dave Walker, Mary Cleave, Mark Lee, Norm Thagard and Ron Grabe; 4) Walker tests *Atlantis'* handling abilities in a crosswind at Edwards; 5) Thagard, left, and Lee don helmets to participate in a cabin depressurization test; 6) the "business end" of Magellan's inertial upper stage booster is photographed as it moves away from *Atlantis*; and 7) the successful mission begins with a last-minute launch that was almost called on account of weather.



Hurricane season nearly upon us

Emergency planners provide tips on readiness

(Continued from Page 1)

A decision to close the center, which indicates action Level 3, is made by the center director with the assistance of the director of human resources. Information concerning work assignments and the closing of any JSC facility will be delivered to employees through their directorate organizations.

Should the center be closed, employees should monitor radio and television broadcasts for return-to-work announcements.

For information purposes, a **hurricane** is a tropical storm with sustained winds greater than 75 miles an hour. A **hurricane advisory** is an official, numbered release issued by the National Hurricane Center that contains specific information on the storm and projections for its future course and intensity. Advisories are issued at 6-hour intervals, or more often if conditions warrant.

A **hurricane bulletin** is a public release issued by the National Hurricane Center, a hurricane warning office, or a local forecast office that contains current data on the storm.

A hurricane watch is a statement issued by the National Hurricane Center indicating there is a *possibility* that the storm *could* make landfall somewhere between the two locations that limit the watch area. If possible, a watch is issued 48 or more hours before possible landfall.

A **hurricane warning** is a statement issued by the National Hurricane Center or other responsible National Oceanic and Atmospheric Administration/National Weather Service Office indicating there is a *high probability* that a storm *will* make landfall somewhere between the two locations that indicate the warning area. If at all possible, a warning is issued 24 or more hours, but not less than 8 daylight hours, before anticipated landfall.

If the center is closed, each employee should properly secure classified and other important materials, raise all venetian blinds to the top of windows, close all doors, and unplug all valuable equipment, cover it with plastic, and move it away from windows before leaving. Organizations that do not have plastic bags on hand

in case of just such an emergency should order them now from JSC Supply and Materials Branch, x36656.

"We had a good 'dress rehearsal' last year with Hurricane Gilbert, all the way up to Level 3, when the Center was actually closed," said Keith McQuary, chief of the Plant Engineering Division. "But we have had hurricane threats in other years—that afforded a chance to put into practice some of the valuable lessons we learned when Hurricane Alicia hit in 1983."

In addition to protecting the lives and property existing on site, the JSC emergency planning team urges employees, as residents of the Texas Gulf Coast area, to form their own plan for personal storm protection. Essential emergency supplies should be gathered in a safe place at home. Employees should assess the vulnerability of their home and contents, and develop firm plans for transportation and shelter with their families. To effectively develop your own emergency plan, consult the accompanying chart:

HURRICANE SURVIVAL CHECKLIST

Before hurricane season begins, things you should know:

- The elevation of your home above mean sea level. Visit the Harris/Galveston Coastal Subsidence District at 1660 West Bay Area Blvd. for this information.
- The maximum storm surge height which might occur in your area; available from your nearest Weather Service Office.
- The route you would travel to safety if you had to leave.
- The location of the nearest Civil Defense or Red Cross official shelter.
- The inventory of your property and what your insurance will cover.

If a hurricane warning is issued:

- Begin a continuous communications watch by monitoring TV or radio weather broadcasts. Discount rumors.
- Prepare your residence and property for high winds by securing all outside objects, protecting large windows and exposed glass, and moving

small boats or trailers close to the house and weighting them down.

- Check mooring lines of boats in the water and then leave them.
- Move valuable and personal papers to highest points.

If you decide to remain at home:

- Remain indoors.
- Stay away from exposed windows and glass doors.
- Stay on the downwind side of the house.
- Keep a continuous communication watch.
- Stay calm.

If you must leave home:

- Make sure there is a safe refuge within reach that can accommodate you and leave early, in daylight if possible.
- Don't travel farther than necessary. Close and lock all windows and doors.
- Carry along survival supplies, important papers, and at least one change of clothes.



A Convair-990 will be modified to permit a series of extensive space shuttle landing gear tests. The shuttle landing gear will be mounted between the standard landing gear of the aircraft, which will land at shuttle speeds on runways and lakebeds at Edwards Air Force Base, and runways at Kennedy Space Center.

Convair to mimic Shuttle landings

(Continued from Page One)

data will begin in July, with post-modification flight tests scheduled for 1990, Simpson said.

"During most of reentry and landing, the space shuttle becomes an airplane," said Robert Baron, project manager at Ames-Dryden. "By testing on actual landing surfaces, we can provide real-world experience for accurate simulations so that the astronauts will know better what to expect in any situation."

In addition to assessing and documenting performance of main and nose landing gear assemblies and tire and wheel assemblies, tests will evaluate brake and nose gear steering performance.

During the program, tests will be conducted on lakebed and concrete runways at Edwards, on the concrete Kennedy Space Center runways and on lakebed runways at White Sands Space Harbor.

Landing speeds of the Convair, which will retain its normal gear, will duplicate those of the orbiter—approximately 225 miles an hour. The orbiter landing gear will be installed so that it can be lowered hydraulically when the aircraft first contacts the landing surface, and computer controlled to duplicate the loads that the shuttle landing gear must work under.

The test gear assembly will be mounted on the aircraft's fuselage between the main tires, and a hole

will be cut in the fuselage to accommodate raising and lowering the gear. The underside of the fuselage will be armor-plated to protect the aircraft from any possible damage.

High-speed video and film cameras, in addition to other instrumentation, will record the tests for thorough analysis.

Other organizations involved in these tests are the NASA Langley Research Center's Landing Impact Dynamics Facility, Hampton, Va.; Wright-Patterson Air Force Base's Landing Gear Development Facility, Dayton, Ohio; the B.F. Goodrich Facility, Troy, Ohio; and Rockwell International's Space Transportation Systems Division, Downey, Calif.

Weekend utility outages planned

Most buildings at JSC will experience outages of electricity, steam, chilled water and compressed air during the Memorial Day weekend. Natural gas, potable water and sanitary sewage disposal systems will not be affected.

The service interruptions, part of the JSC Central Heating and Cooling Plant's annual maintenance activities, will affect all mall buildings.

Exceptions include the Mission Operations wing of Bldg. 30, which will receive all utility services except humidification steam from Bldg. 48. Bldg. 222 will not be affected except for compressed air.

Electrical power system outages will occur at different times for different

buildings, and brief electrical interruptions are possible for all mall buildings and the Thermochemical Test Area throughout the weekend.

Scheduled electricity outages include: Bldg. 13 from 6 p.m. Friday to 8 p.m. Saturday; Bldgs. 1, 14, 15, 16A, 17, 18, 24, 39A, 39B, 90, 102, 103 and 45, from 7 a.m. to 8 p.m. Saturday; Bldg. 16 from 7 a.m. to midnight Saturday; Bldg. 30A from 7:30 a.m. to 6 p.m. Sunday; Bldgs. 32, 32A, 36 and 41, from 7 a.m. to 6 p.m. Monday.

Short switching outages are expected in Bldg. 8 after 6 p.m. Friday and after 1 p.m. Sunday. Short switching outages will occur at Bldgs. 2 and 3 after 4 p.m. Friday and after 4 p.m. Saturday.

Groundbreaking scheduled for auxiliary chiller facility

Groundbreaking for the auxiliary chiller facility, Bldg. 28, which will generate 4,000 tons of chilled water to add to the 14,000 tons available to air condition the center today, is set for June 1 at 9:30 a.m.

JSC Director Aaron Cohen and Kenneth Gilbreath, director of Center Operations, will kickoff the construction process on the new facility that is scheduled for completion July 3, 1990.

"The new chiller facility should be a real boon to helping keep the employees and equipment on site at a comfortable temperature," said Barry Wittschen, project manager in the Facility Development Division.

"You might say we'll be keeping JSC out of hot water."

Bldg. 28 was designed by the architectural firm of Lockwood, Andrews and Newnam, Houston. The \$7 million construction contract was awarded to Harrop Construction, also of Houston. The 8,400-square-foot facility will contain two 2,000-ton electrically driven chillers. The project also provides the piping and valves required to connect the new facility to the existing water distribution system. Bldg. 28 will be located on Fifth St., directly north of the parking lot on the north side of Bldg. 35.

Alumni group forms at JSC

(Continued from Page One)

"Another reason for the meeting was to create awareness of our group, since we feel we were only able to contact less than a third of the former NASA employees living in the area," said Griffin. "We're open to all NASA employees, not just JSC, that live in the vicinity of the center."

The all-day meeting included an official welcome and JSC overview by Dan Nebrig, executive assistant to the center director, and briefings on the state of NASA by Les Sullivan, Strategic Planning; Jack Lister, Human Resources; Leonard Nicholson, National Space Transportation System; Carl Shelley, Space Station; New Initiatives, Larry Erwin; and Space Center Houston, Hal Stall.

"I was very pleased to see the size of the crowd and their enthusiasm," said Nebrig. "It was great to see our friends and former employees have that much interest in us."

After lunch, the group toured the

Space Station mock-ups in Bldg. 9B and the new Central Computing Facility in Bldg. 46. The afternoon concluded with a tour and briefings on upgrades to the Mission Control Center.

"Now that we've had our initial meeting, we're hoping word of mouth will bring other potential members to our group," Griffin said. "We'll probably have one annual meeting like this one at JSC every year, and the rest of the time break into smaller task forces made up of people whose experience uniquely matches the particular independent study we're doing," he said.

"There's only so much an agency like NASA can speak out on the issues," Griffin said. "If the people of NASA, including this group of retirees and former employees, can combine their support, we feel it will be very helpful with the issues we face."

For more information on the NASA Alumni Group, JSC Chapter, contact Gerry Griffin, 651-1834 or Al Jowid, 280-1546.

Space News Roundup

The Roundup is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

Cohen gets degree

JSC Director Aaron Cohen recently received an honorary Doctor of Humane Letters degree from the University of Houston-Clear Lake (UHCL).

A committee of faculty members nominated Cohen for the honor because of his "exceptional service to this university, to the pursuit of knowledge, and to the nation's progress in space science and engineering." The award was presented in conjunction with spring graduation ceremonies May 13.

White Sands worker earns Quality Partnership Award

Barry A. Plante, a project manager in the Laboratories Office at White Sands Test Facility, has earned this quarter's JSC Quality Partnership Award.

Charles Harlan, director of Safety, Reliability and Quality Assurance, presented the award to Plante last Friday at White Sands. The award, established by the Safety, Reliability and Quality Assurance Office, is designed to recognize the quality-related contributions of a professional who does not work in the quality field.

Plante was cited for volunteering to singlehandedly revise an ambiguous ground-based pressure vessels and pressurized systems manage-

ment instruction, even though it was not one of his responsibilities.

"He was allowed to take on the task, and within a few months produced an outstanding document that no one is understandable by personnel who must abide by it, but when fully implemented, will save from 5 to 10 MYE (man years), improve test schedules, and provide a safe approach," reads the nomination by John McGee, chief of White Sands' Quality Assurance, Reliability and Safety Office.

Plante made numerous other safety improvement suggestions, most notable of which was an improved management structure for pressure systems.

The next Partnership Award will be presented in July. Nominations should be sent to T.J. Adams, chief of the Quality Assurance and Engineering Division, Code ND.



Plante